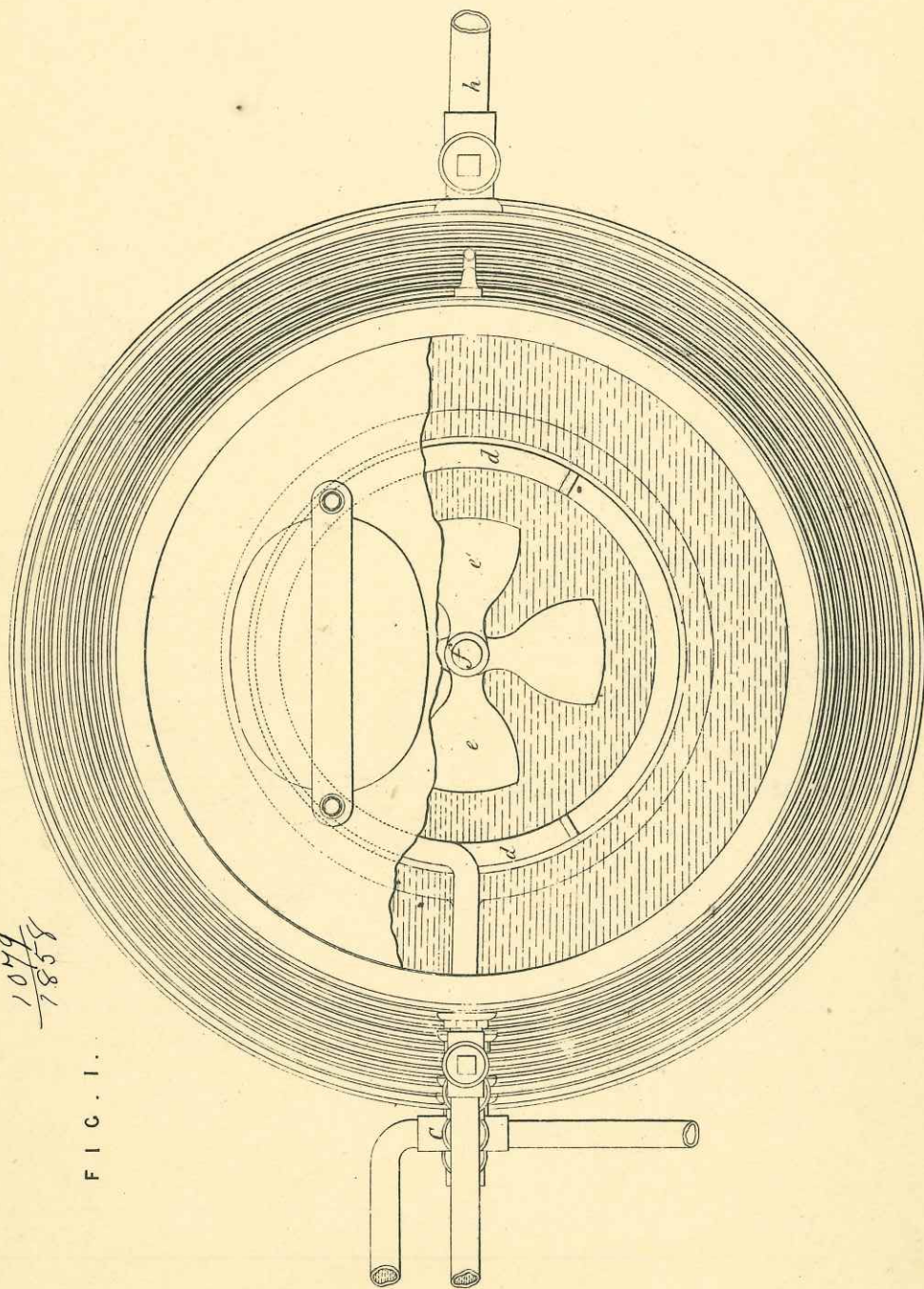


195. ALCOHOL.
Mashing-
Apparatus.

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FIG. I.

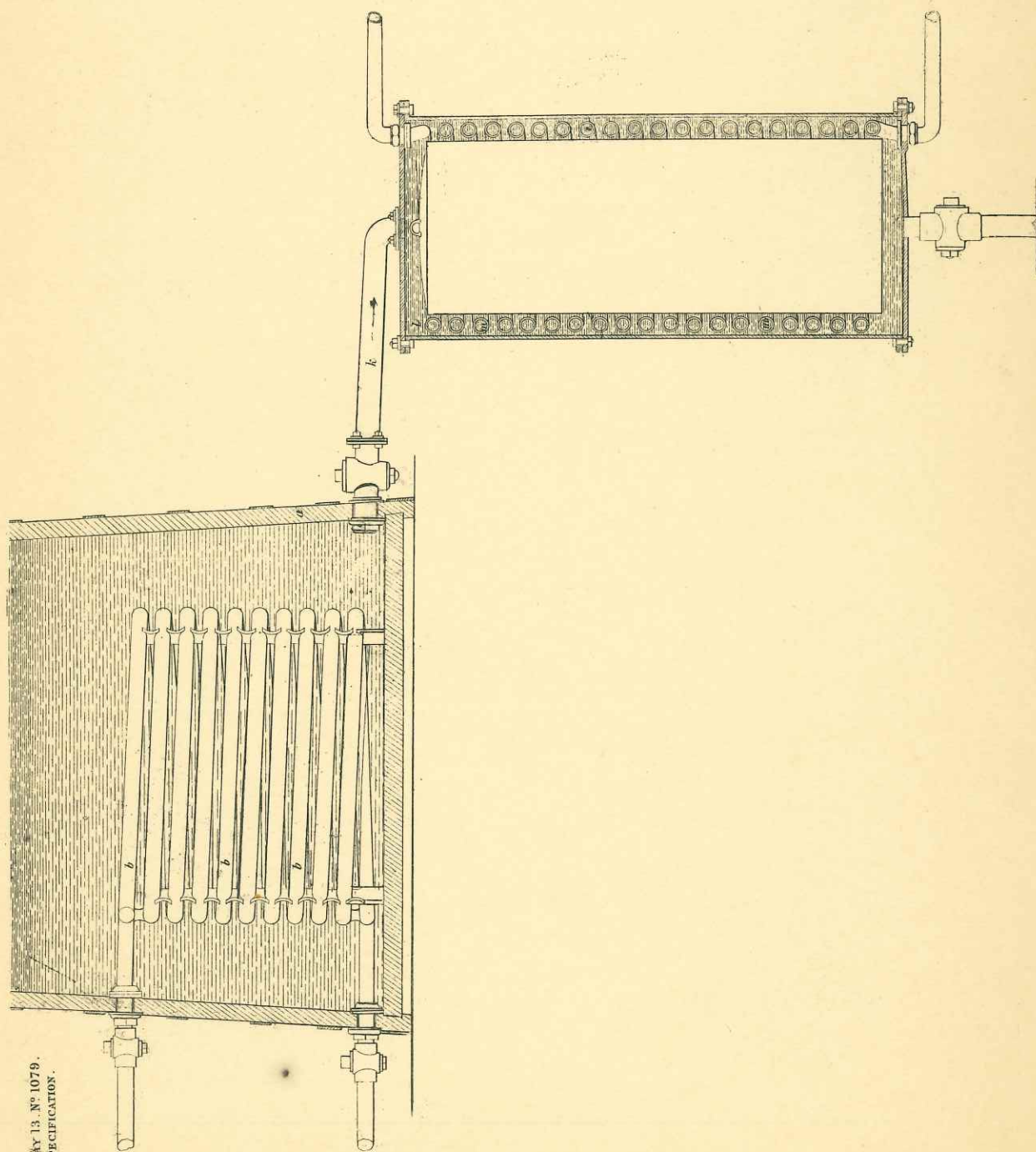
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A.D. 1858, MAY 13, N° 1079.
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195. ALCOHOL.
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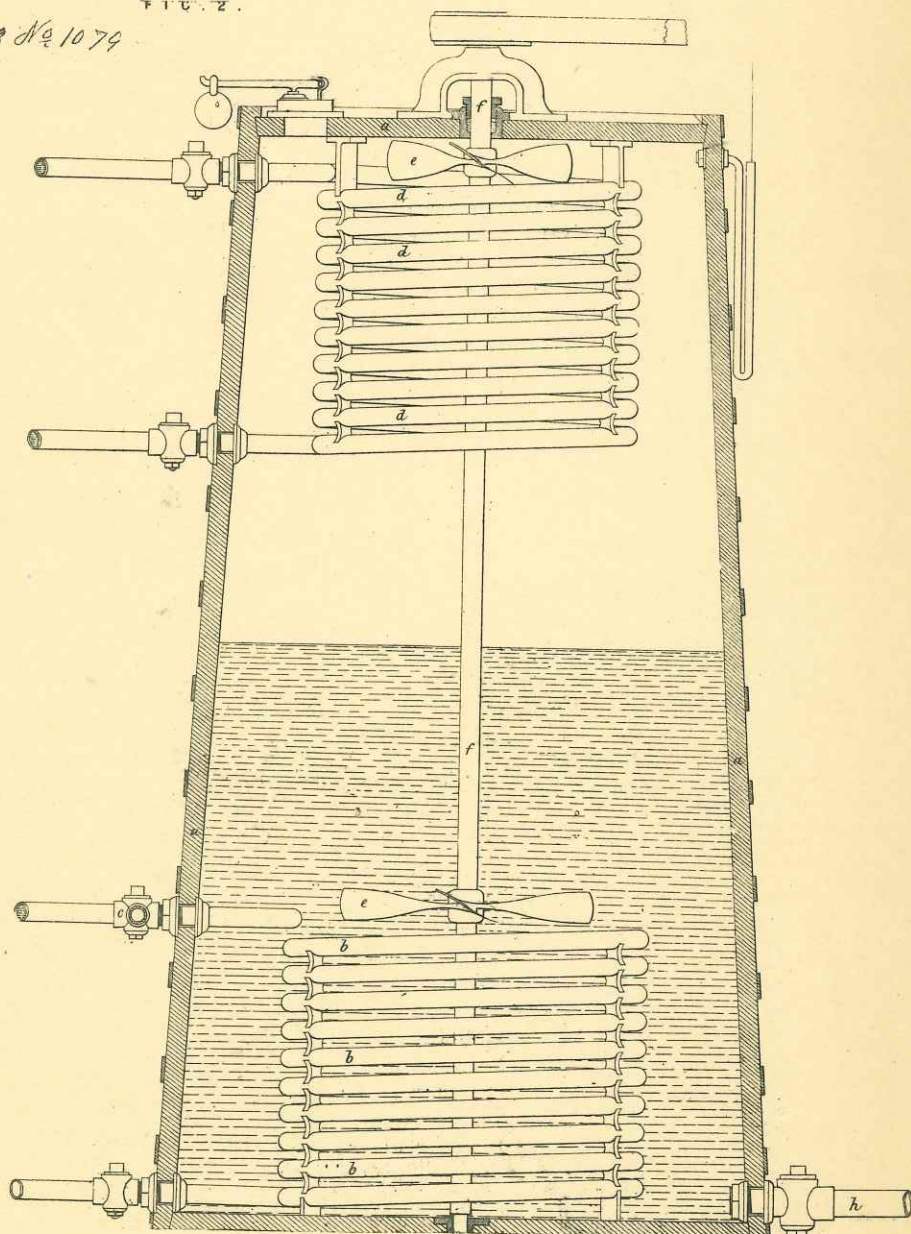
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FIG. 2.



195. ALCOHOL,
Mashing-
Apparatus.

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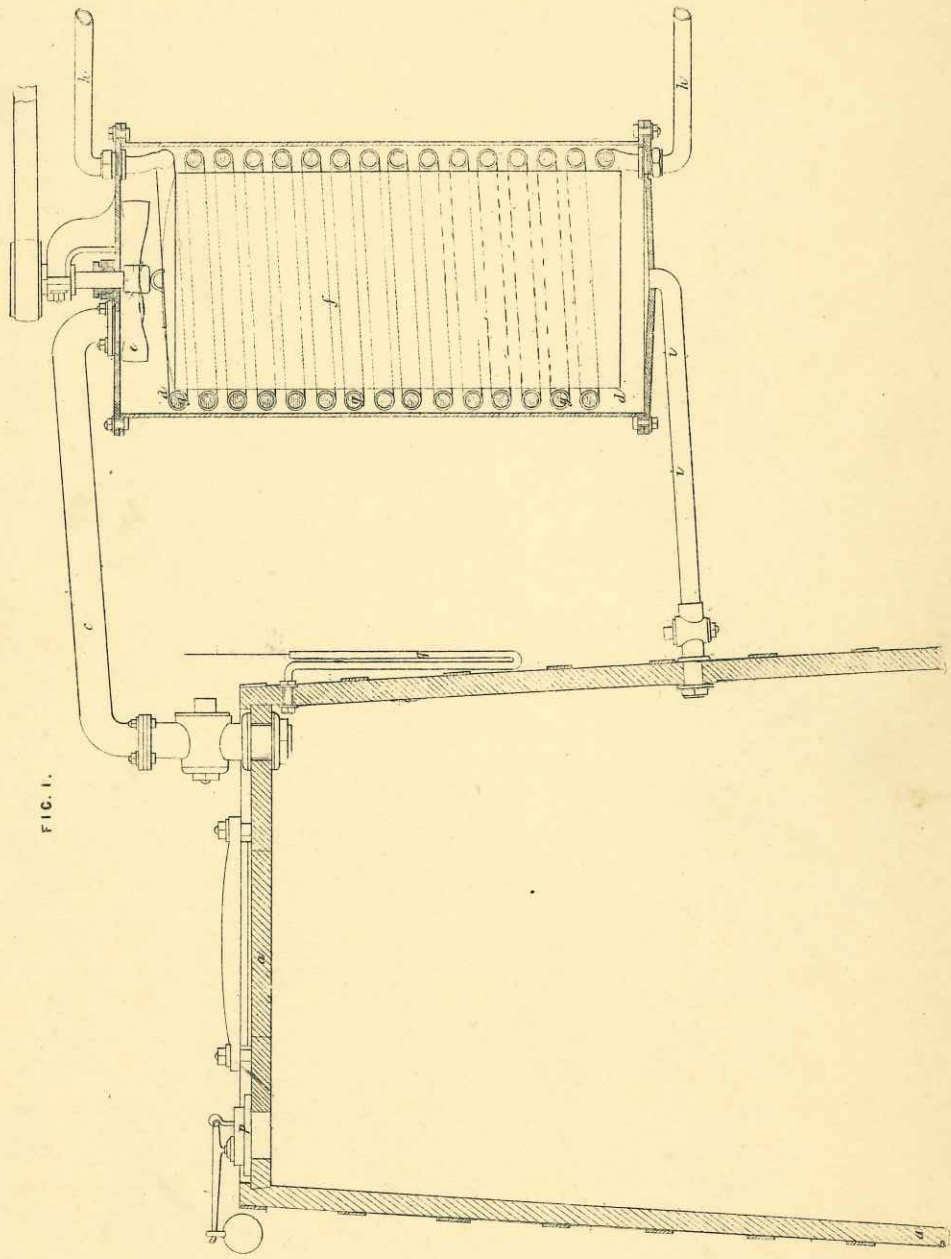


FIG. 1.

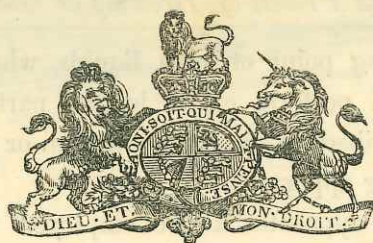
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DIX'S SPECIFICATION.

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A.D. 1858, 13th MAY. N° 1079.

Brewing, &c.

LETTERS PATENT to Alexander Mills Dix, of Hanley, in the County of Stafford, Brewer, for the Invention of "CERTAIN IMPROVEMENTS IN THE PROCESS OF BREWING OR OBTAINING DECOCTIONS, AND IN APPARATUS CONNECTED THEREWITH, WHICH APPARATUS IS ALSO APPLICABLE TO CONDENSING, REFRIGERATING, OR OTHER SUCH LIKE PURPOSES."

Sealed the 9th November 1858, and dated the 13th May 1858.

PROVISIONAL SPECIFICATION left by the said Alexander Mills Dix at the Office of the Commissioners of Patents, with his Petition, on the 13th May 1858.

I, ALEXANDER MILLS DIX, of Hanley, in the County of Stafford, Brewer, do hereby declare the nature of my said Invention for "CERTAIN IMPROVEMENTS IN THE PROCESS OF BREWING OR OBTAINING DECOCTIONS, AND IN APPARATUS CONNECTED THEREWITH, WHICH APPARATUS IS ALSO APPLICABLE TO CONDENSING, REFRIGERATING, OR OTHER SUCH LIKE PURPOSES," to be as follows:—

My Invention consists, first, in the novel application, employment, or use of a condensor or refrigerator in connection with the closed boiling pan or vessel, in order to prevent the escape of the effluvia during the boiling of hops or other aromatic substances.

Secondly, in the novel employment or use of a condensor or refrigerator as applied to the boiling of any other liquid when necessary to boil in vacuo, or

Dix's Improvements in the Process of Brewing or Obtaining Decoctions, &c.

under the ordinary boiling point of such liquids, whether aromatic or not. These novel operations I perform either by the particular arrangement of condensor, &c., next described, or by the application or use of any well-known condensing or refrigerating apparatus.

Thirdly, my improved apparatus to be employed for either condensing, 5 refrigerating, or other such like purpose, consists of a coil of piping placed between two cylinders or drums, the inner one being somewhat less in diameter, leaving only sufficient space for the coil of piping to be fixed between the cylinders, and so as not to come in contact with either cylinder, the method of condensing being to pass the steam, &c. over the coil of piping 10 and between the two cylinders in thin streams, and to assist the passage of the steam, &c. by means of an agitator or propelling fan placed above and within the condensor, a stream of cold water passing simultaneously through the coil of piping; the tube or pipe which conveys the steam and aroma to the top of the condensor or refrigerator, terminating in the closed vessel used for brewing 15 or boiling purposes; the reversing of the passages of the hot and cold streams renders the same apparatus available for boiling purposes if required.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Alexander Mills Dix in the Great Seal Patent Office on the 13th November 1858.

20

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ALEXANDER MILLS DIX, of Hanley, in the County of Stafford, Brewer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Thirteenth day of May, in the year of our Lord One thousand eight hundred and fifty-eight, in the twenty-first year of Her reign, 25 did, for Herself, Her heirs and successors, give and grant unto me, the said Alexander Mills Dix, Her especial license that I, the said Alexander Mills Dix, my executors, administrators, and assigns, or such others as I, the said Alexander Mills Dix, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter 30 during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**CERTAIN IMPROVEMENTS IN THE PROCESS OF BREWING OR OBTAINING DECOCTIONS, AND IN APPARATUS CONNECTED THEREWITH, WHICH APPARATUS IS ALSO APPLICABLE TO CONDENSING, 35 REFRIGERATING, OR OTHER SUCH LIKE PURPOSES,**" upon the condition, amongst

Dix's Improvements in the Process of Brewing or Obtaining Decoctions, &c.

others, that I, the said Alexander Mills Dix, by an instrument in writing under my hand and seal, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six
5 calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Alexander Mills Dicks, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the
10 following statement and accompanying Drawings (that is to say):—

My Invention consists, first, in the novel application, employment, or use of a condenser or refrigerator in connection with the closed boiling pan or vessel in order to prevent the escape of the effluvia during the boiling of the hops or other aromatic substances.

15 Secondly, in the novel employment or use of a condenser or refrigerator as applied to the boiling of any other liquid when necessary to boil in vacuo, or under the ordinary boiling point of such liquids, whether aromatic or not. These novel operations I perform either by the particular arrangement of condenser, &c. next described, or by the application or use of any well-known
20 condensing or refrigerating apparatus.

Thirdly, my improved apparatus to be employed either for condensing, refrigerating, or other such like purposes, consists of a coil of piping placed between two cylinders or drums, the inner one being somewhat less in diameter, leaving only sufficient space for the coil of piping to be fixed
25 between the cylinders, and so as not to come into contact with either cylinder, the method of condensing being to pass the steam, &c. over the coil of piping, and between the two cylinders in thin streams, and to assist the passage of the steam, &c. by means of an agitator or propelling fan placed above and within the condenser, a stream of cold water passing simultaneously through
30 the coil of piping; the tube or pipe which conveys the steam and aroma to the top of the condenser or refrigerator terminating in the closed vessel used for brewing or boiling purposes; the reversing of the passages of the hot and cold streams renders the same apparatus available for boiling purposes.

In order that the Invention may be better understood, and explained in
35 detail, I have hereunto attached two Sheets of Drawings, made upon a scale of about two inches to a foot.

In Sheet 1, Fig. 1 is a sectional elevation of that description of apparatus as above described, wherein three vessels are employed.

In Sheet 2. Fig. 1 is a plan view, and Fig. 2, a sectional elevation of an

Dix's Improvements in the Process of Brewing or Obtaining Decoctions, &c.

apparatus of more simple construction, wherein the various processes are effected in one vessel.

In Sheet 1, Fig. 1, *a, a*, is the vat or vessel containing the liquor to be boiled, by means of steam supplied to and circulating through the coil of piping *b, b*. The steam and aroma arising from the boiling liquid is 5 exhausted from the upper portion of the vat through the pipe *c* into the chamber *d* by means of the agitator or fan *e*, which is driven at a high speed by suitable means; between the outer chamber *d* and the inner cylinder *f* a coil of piping *g, g*, is arranged, through which a stream of cold water circulates or passes in and out of the pipe *h, h*¹; by this means the steam, &c. 10 exhausted from the vat becomes condensed, and falling to the lowest point of the vessel or chamber *d* is returned by the pipe *i* to the vat. When the liquid has been sufficiently boiled it is drawn off from the vat by the pipe *k* into the cooling vessel *l*, which is similar in construction to the condenser, consisting in a coil of piping *m*, and an inner cylinder *n*, so that as the liquid 15 passes in thin streams over and around the pipes containing the cold water it becomes cooled, and is finally withdrawn from the cooler by the pipe and tap *o* at the bottom of the chamber. The vat or vessel *a, a*, is supplied with a double valve *p*, which will act either as a pressure valve when the pressure of steam in the vat is too high, or as a vacuum valve to supply air when the 20 steam and air is exhausted too rapidly; it is also furnished with a pressure guage *q*, which may be of any suitable description.

In Sheet 2, Fig. 2, *a, a*, is the vat or vessel in which the various processes are effected without the employment of extra chambers. The coil of piping *b, b*, may either be supplied with steam or cold water by means of a suitable 25 tap *c* and coil *d, d*, being always supplied with a stream of cold water. When it is required to boil the liquor, steam is supplied and circulated through the pipes *b, b*, and the liquor is propelled or agitated about such piping by means of the fan *e* upon the central shaft *f*, which is suitably driven; as the steam and aroma rises from the boiling liquid it is circulated or agitated around the 30 cold water piping *d, d*, by the fan *e*¹, and it thereby becomes condensed and falls into the liquid below. When the process of boiling has been completed, the steam is turned off, and cold water circulated through the coil of piping *b, b*, and the propellers or fans kept in motion until the liquid is sufficiently cooled, when it may be withdrawn by means of the pipe and tap *h*; this form of 35 apparatus is also furnished with the necessary valves and guage, as previously described.

Having now described the nature of the said Invention, together with the methods of carrying the same into practical effect, I wish it to be distinctly

Dix's Improvements in the Process of Brewing or Obtaining Decoctions, &c.

understood that I claim the preventing the escape of the aroma or effluvia
during the boiling of hops or other aromatic substances by means of the novel
application and employment of a condenser in connection with the closed
boiling vat or vessel, whether the liquid be boiled in vacuo or otherwise, and
5 whether the processes be performed in one or separate vessels.

Secondly, I claim the application, employment, or use of the condensing apparatus, also for the purposes of refrigerating.

And, thirdly, I claim the general arrangement and construction of apparatus for effecting the above-desired objects, as herein-before described, set forth,
10 and fully exhibited in the Drawings attached.

In witness whereof, I, the said Alexander Mills Dix, have hereunto set my hand and seal, this Twelfth day of November, in the year of our Lord One thousand eight hundred and fifty-eight.

ALEXANDER MILLS DIX. (L.S.)

LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1858.